DISSOLVED OXYGEN

Dissolved oxygen analysis measures the amount of gaseous oxygen (O2) dissolved in an aqueous solution. Oxygen gets into water by diffusion from the surrounding air, by aeration (rapid movement), and as a waste product of photosynthesis.

When performing the dissolved oxygen test, only grab samples should be used, and the analysis should be performed immediately. Therefore, this is a field test that should be performed on site.

Effects:

Oxygen depletions are the most common cause of fish kills in ponds. Most oxygen deletions occur in the summer months because 1) warm water holds less dissolved oxygen than cool or cold water, and 2) because the pond's oxygen demand is greater in warm water than in cold water. Fish kills from oxygen depletions can range from "partial" to "total". In a partial kill the dissolved oxygen level gets low enough to suffocate sensitive species and large fish, but many small fish and hardy species survive.

Adequate dissolved oxygen is necessary for good water quality. Oxygen is a necessary element to all forms of life.

Causes:

Plankton die-offs cause rapid oxygen depletions for two reasons: 1) the remaining dissolved oxygen is consumed by aerobic bacteria and fungi in the process of decaying the dead algae and 2) few live phytoplankton remain to produce more oxygen.

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Prevention:

It can be very easily prevented by the use of supplemental aeration. Aerators come in all sizes and shapes as well as different power sources, i.e., tractor p-t-o, electrical, mechanical, etc. It is important to aerate the pond properly, i.e. match the size of the aerator to the pond, since over-aeration is wasted and may even lead to oxygen supersaturation, known as "gas-bubble" disease and under-aeration will not prevent stratification.